Data Files Information

For purposes of this study, a “sand” is the aggregation of all fault-block portions of an originally continuous sandstone body. A “pool” is the aggregation of all sands within a field that are in the same play. Separate sand, pool, and field data files include the same source data, which have been variously grouped, summed, and averaged for the convenience of the reader. To produce sand values, reservoir attributes have been either summed or weight-averaged, or they have been reported from a dominant reservoir if attributes could not be summed or averaged. If an attribute is a characteristic or a process (i.e., a trap or drive mechanism), the dominant characteristic has been listed. All sands are weighted by reservoir bulk volume of individual reservoirs. This averaging emphasizes the attribute values of reservoirs having the most original oil or gas in place. If the reservoir contains both oil and gas, then gas is converted to barrels of oil equivalent (5,620 cf gas = 1 bbl oil) and summed with the oil.

Tabular Data

The tabular data for this report can be found in the *Data Files* directory of the CD-ROM. The files are formatted in Excel 97 (.xls), Access 97 (.mdb), dBase III (.dbf), tab-delimited ASCII (.txt), and space-delimited ASCII (.prn). We suggest that you use the spreadsheet software that you have, or use the appropriate ASCII files if you do not have Excel or compatible software. Instructions for importing these files depend upon your individual applications and platforms. For those without any spreadsheet software, we have included Microsoft Excel Viewer. This software will enable you to view the Excel 97 (.xls) files, but not edit, query, or sort them.

All attributes in the tabular files use the same definition of terms as is presented in the Attribute Definitions section. There are 11 tabular files presented in several formats:

9901fields: Field-level data as of January 1, 1999, for assessed and nonassessed fields. The fields file contains reserves and production data for proved and unproved fields, and limited data for nonassessed fields that are known to contain hydrocarbons. The block number was used as the field name for the nonassessed fields.

9901plays: Database of the 65 established GOM plays. The plays file contains play name and number, region, province, system, series, chronozone, and play type.

9901pools: Pool-level data as of January 1, 1999, for assessed and nonassessed fields. The pools file contains reserves and production data for proved and unproved pools, and limited data for nonassessed pools that are known to contain hydrocarbons. The block number was used as the field name for pools in nonassessed fields.

9901sands: Sand-level data as of January 1, 1999, for assessed and nonassessed fields. An assessed sand is a sand with reserve estimates in the databases herein. A nonassessed sand is a sand with no reserve estimates in the databases herein. The sands file contains reserves and production data for proved and unproved sands, and limited data for nonassessed sands that are known to contain hydrocarbons. The block number was used as the field name for sands in nonassessed fields.

9901sumtbls: Summary Tables 1 and 2, presented only as an Excel file because of formatting.

9901tbls: Reserves and cumulative production and sand attributes tables, presented only as an Excel file because of formatting.

diff_play99-97: Sands that are in different plays when comparing the January 1, 1999, data to the January 1, 1997, data.

diff_sand97-99: Sands that changed when comparing the January 1, 1997, data to the January 1, 1999, data. See the remark column in the table for an explanation.

diff_sand99-97: Sands that changed when comparing the January 1, 1999, data to the January 1, 1997, data. See the remark column in the table for an explanation.

xref_oper-comp: Cross references MMS sand name to company reservoir name for completion intervals.

xref_oper-sand: Cross references MMS sand name to company reservoir name.

Additionally, five tabular files for a January 1, 1997, data set are included in a directory on the CD-ROM named *Unpublished 1-1-1997 Data.* An Atlas was not compiled or published, but the data is being

presented to complete the two-year data release cycle. These files have not been modified to comply with the naming and data conventions presented in this report.

9701checksands: Sands that changed between the January 1, 1995, data and the January 1, 1997, data.

9701checkplays: Sands that are in different plays when comparing the January 1, 1997, data to the January 1, 1995, data

9701newsands: Sands in the January 1, 1997, data that did not exist in the January 1, 1995, data.

9701pools: Pool-level data as of January 1, 1997.

9701sands: Sand-level data as of January 1, 1997.

GIS Data

A geographic information system (GIS) provides a better way of viewing and exploring data by linking a graphic map to tabular data. Both the graphic and the table can be queried and can feed back information. A GIS is also intelligent in that the graphic is generally displayed in real-world coordinates (i.e., distances and areas portrayed on the map correspond to real-world locations and distances). If this is your first experience using GIS data, be sure to note that map data, like all types of data, have certain tolerances for accuracy (scale, degree of generalization) or other specific limitations.

The GIS data for this report can be found in two subdirectories under the *Data GIS* directory of the CD-ROM. The *General Data* subdirectory comprises sand, pool, and field themes in addition to infrastructure (pipeline, platform, etc.) and cultural data (blocks, protractions, etc.). The *Play Outlines* subdirectory contains shapefiles for each of the established GOM plays. All GIS data presented here are in latitude and longitude decimal degrees, NAD 27. It is inappropriate to use this projection of data for volume or area analysis. (Volumetric measurements of sands and fields are presented in the data tables.) To use the GIS files for accurate measurement, the graphics files would first need to be converted to a true cartographic projection.

GIS General Data Files

All attribute data included in the ArcView shapefiles were summarized from tabular data files, and attribute variables use the same definition of terms as is presented in the Attribute Definitions section. There are 13 shapefiles presented in the *General Data* subdirectory:

9901blocks: Blocks shapefile.

9901fairways: Fairways shapefile.

9901fan-lines: Shapefile comprising the F1-F2 and F2-F3 lines of demarcation between the F1, F2, and F3 plays.

9901fed-state: Federal-state boundary shapefile.

9901fields: Fields shapefile. Field-level data as of January 1, 1999, for assessed and nonassessed fields. The sand outlines were used to create the field outlines. All sands in a field were aggregated into the field outline, which may or may not be contiguous. The information attached to the field polygons represents the entire field, not the individual polygon. Adding information from more than one polygon to estimate the total field value is unnecessary. The field polygons have reserves and production data for proved and unproved fields, and limited data for nonassessed fields that are known to contain hydrocarbons. The block number was used as the field name for the nonassessed fields.

9901pipelines: Pipelines shapefile.

9901planning: Planning areas shapefile.

9901platforms: Platforms shapefile.

9901pools: Pools shapefile. Pool-level data as of January 1, 1999, for assessed and nonassessed fields. The sand outlines were used to create the pool outlines. All sands within a field that are in the same play were aggregated into the pool outline, which may or may not be contiguous. The information attached to the pool polygons represents the entire pool, not the individual polygon. Adding information from more than one polygon to estimate the total pool value is unnecessary. The pool polygons have reserves and production data for proved and unproved pools, and limited data for nonassessed pools that are known to contain hydrocarbons. The block number was used as the field name for pools in nonassessed fields.

9901protractions: Protraction areas shapefile.

9901sands: Sands shapefile. Sand-level data as of January 1, 1999, for assessed and nonassessed fields. The sand outlines were generated from individual reservoir polygons (generated by buffering the completions, or the discovery well if there were no completions, with an area relative to the reservoir area in the database) used for internal MMS analysis. The individual reservoir polygons were aggregated into sand polygons, which may or may not be contiguous, and are presented for both assessed and nonassessed sands. An assessed sand is a sand with reserve estimates in the databases herein. A nonassessed sand is a sand with no reserve estimates in the databases herein. The information attached to the sand polygons represents the entire sand, not the individual polygon. Adding information from more than one polygon to estimate the total sand value is unnecessary. The sand polygons have reserves and production for proved and unproved sands, and limited data for nonassessed sands that are known to contain hydrocarbons. The block number was used as the field name for sands in nonassessed fields.

coast-line: Coast polyline shapefile.

coast-poly: Coast polygon shapefile.

GIS Play Outline Files

Files containing play outlines are presented for each play, and each outline will have a play name and limit designation (hydrocarbon or play). The naming convention for the files is “chronozone_play type” (e.g., the file for LM4 A1 play will be named lm4_a1). All attribute data included in the ArcView shapefiles were summarized from tabular data files, and attribute variables use the same definition of terms as is presented in the Attribute Definitions section. The shapefiles for the 65 established GOM plays are presented in the *Play Outlines* subdirectory.

Terminology

Glossary
Attribute Definitions
Definitions and Data Codes

Glossary

Selected terms relevant to this report are defined here. They are intended to be generally explanatory rather than strictly technical.

Abyssal plain: A flat region of the ocean floor, usually at the base of a continental rise, whose slope is less than 1:1000. It is formed by the deposition of sediments that obscure the preexisting topography.

Aggradational: See "depositional style/facies."

Allochthonous: Formed elsewhere than at its present location.

Alluvial deposits: A general description of all sediments deposited on land by streams.

Anhydrite: A mineral, anhydrous calcium sulfate ($CaSO_4$), usually occurring in whitish or slightly colored masses and often associated with gypsum and halite in evaporites. It represents gypsum without its water of crystallization.

API Gravity: An arbitrary scale expressing the gravity or density of liquid petroleum products. The measuring scale is calibrated in terms of degrees API. The higher the API gravity, the lighter the fluid.

Appreciation: Analogous to reserves appreciation. See "reserves."

Aragonite: A white, yellowish, or gray orthorhombic mineral ($CaCO_3$). It has a greater density and hardness, and a less distinct cleavage, than calcite, and is also less stable and less common than calcite. It commonly occurs in fibrous aggregates in beds of gypsum and of iron ore, and as a deposit from hot springs, and it is a major constituent of shallow marine muds and the upper parts of coral reefs; it is also an important constituent of the pearl and of some shells.

Assessed sand: See "sand."

Assessment: The estimation of potential amounts of conventionally recoverable hydrocarbon resources.

Associated gas: See "gas, natural."

Autochthonous: Formed at its present location (in situ).

Barrel: A volumetric unit of measure for crude oil, equivalent to 42 U.S. gallons.

Barrels of oil equivalent (BOE): The sum of gas resources, expressed in terms of their energy equivalence to oil, plus the oil volume. The conversion factor of 5,620 standard cubic feet of gas equals 1 BOE is based on the average heating values of domestic hydrocarbons.

Barrier reef: A reef of coral running roughly parallel to the shore and separated from it by a wide, deep lagoon.

Basin: An area in which a thick sequence (typically thicknesses of 1 km or greater) of sedimentary rocks is preserved.

Bioherm: A carbonate rock formation, in the form of an ancient reef or hummock, consisting of the fossilized remains of corals, algae, mollusks, and other sedentary marine life, and commonly surrounded by rock of a different lithology (e.g., an organic reef or a nonreef limestone mound).

Biostrome: A distinctly bedded and widely extensive or broadly lenticular, blanket-like mass of rock built by and composed mainly of the remains of sedentary organisms, and not swelling into mount-like or lens-like form (e.g., a bed of shells, crinoids, or corals, or a modern reef in the course of formation).

Biozone: Biostratigraphic unit including all strata deposited during the existence of a particular kind of fossil.

Block: A numbered area on an OCS map, varying in size, but typically 5,000 to 5,760 acres (approximately 9 mi^2). Each block has a specific identifying number, area, and latitude and longitude coordinates that can be located on a map.

Boundstone: A carbonate rock that is bound together in the original depositional environment by framework building organisms such as coral, encrusting organisms such as bryozoans, or sediment trapping mechanisms such as those of the

cyanobacteria. It can have complex structures which show cellular detail, or appear laminated.

Brachiopod: Any solitary marine invertebrate belonging to the phylum Brachiopoda, characterized by a lophophore and by two bilaterally symmetrical valves that may be calcareous or composed of chitinophosphate and that are commonly attached to a substratum, but may also be free. Stratigraphic range is lower Cambrian to present.

Bryozoan: Any invertebrate belonging to the phylum Bryozoa and characterized chiefly by colonial growth, a calcareous skeleton, or less commonly, a chitinous membrane, and a U-shaped alimentary canal, with mouth and anus. Stratigraphic range is Ordovician to present, with a possible downward extension into the upper Cambrian.

Calcite: A common rock-forming mineral ($CaCO_3$). It is usually white, colorless, or pale shades of gray, yellow, and blue; it has perfect rhombohedral cleavage and is the principal constituent of limestone. It is commonly found as the cementing medium in clastic sedimentary rocks.

Carbonate: See “sediment.”

Chance: See “probability” or “risk.”

Chronozone: A body of rock formed during the same span of time. In this report, boundaries are defined by biostratigraphic and correlative seismic markers.

Clastic: See “sediment.”

Compliant tower: See “development systems.”

Conceptual play: See “play.”

Condensate: Hydrocarbons, associated with saturated gas, that are present in the gaseous state at reservoir conditions, but produced as liquid hydrocarbons at the surface.

Continental margin: The composite continental rise, continental slope, and continental shelf as a single entity. The term, as used in this report, applies only to the portion of the margin whose mineral estate is under Federal jurisdiction; geographically synonymous with Outer Continental Shelf (OCS).

Continental rise: The base of the continental slope, which in places is marked by a more gently dipping surface that leads seaward to the ocean floor.

Continental shelf: The shallow, gradually sloping zone extending from the shoreline to a depth at which there is a marked steep descent to the ocean bottom.

Continental slope: The portion of the continental margin extending seaward from the continental shelf to the continental rise or ocean floor.

> **Lower slope**: That portion of the continental slope that is under 1,642-6,562 ft of water.
>
> **Upper slope**: That portion of the continental slope that is under 656-1,641 ft of water.

Conventionally recoverable: Producible by natural pressure, pumping, or secondary recovery methods such as gas or water injection.

Conventionally recoverable resources: See “resources.”

Coral: (a) A general name for any of a large group of bottom-dwelling, sessile, marine invertebrate organisms (polyps) that belong to the class Anthozoa (phylum Coelenterata), that are common in warm intertropical modern seas and abundant in the fossil record in all periods later than the Cambrian, that produce external skeletons of calcium carbonate, and that exist as solitary individuals or grow in colonies. (b) A hard calcareous substance consisting of the continuous skeleton secreted by coral polyps for their support and habitation, and found in single specimens growing plant-like on the bottom or in extensive solidified accumulations (coral reefs). Also, any marine deposit like coral resulting from vital activities of various organisms (such as certain algae, or bryozoans and worms).

Coralline algae: A type of calcareous alga that forms encrustations.

Crinoid: Any pelmatozoan echinoderm belonging to the class Crinoidea, characterized by quinqueradiate symmetry, by a disk-shaped or globular body enclosed by calcareous plates and from which appendages, commonly branched, extend radially, and by the presence of a stem, or column, more common in fossil than in living forms.

Cumulative production: The sum of all produced volumes of hydrocarbons prior to a specified point in time.

Dasiclad: Pertaining to a type of green algae (type genus Dasycladus) whose filaments are whorled about a central axis which is often encrusted with lime.

Delineation: The drilling of additional wells after a discovery in order to determine more accurately the extent and quality of a prospect prior to a development decision.

Deltaic deposits: Low, nearly flat, deposits of clay, silt, and sand at or near the mouth of a river when it loses velocity and drops part of its sediment load. Coarse particles settle first and proximally, and fine clays settle last and distally. These deposits commonly form a triangular or fan-shaped plain (delta) of considerable area enclosed and crossed by many distributaries of the main river, perhaps extending beyond the general trend of the coast, and resulting from the accumulation in a wider body of water (usually a sea or lake) of sediment supplied by a river in such quantities that it is not removed by tides, waves, and currents. Most deltas are partly subaerial and partly below water. The three main varieties of deltas are the arcuate (e.g., the Nile), the bird's-foot (e.g., the Mississippi), and the cuspate (e.g., the Tiber).

Depositional style/facies: Large-scale patterns of basin fill. Depositional styles/facies are discerned by relative proportions of sandstone and shale, electric log patterns, ecozone information, and parasequence stacking patterns. Four patterns (retrogradational, aggradational, progradational, and fan) were utilized herein to provide a framework for classifying and predicting reservoir trends, distribution, and quality in the northern Gulf of Mexico.

> **Retrogradational**: Characterized by well log patterns showing backstepping packages of thin, commonly fining-upward sandstones separated by thicker shale units. Represents the reworking of sediments by major marine transgressions.
>
> **Aggradational**: Characterized by well log patterns showing thick, blocky, stacked sandstones separated by thinner shale units. Represents sediment buildup in continental to shallow marine shelf environments.
>
> **Progradational**: Characterized by well log patterns showing commonly coarsening-upward packages of thin to thick sandstones separated by subequally thick shale units. Represents a major regressive episode in which sediments outbuild onto both the shelf and slope.
>
> **Fan**: Characterized by well log patterns showing thin to thick, commonly fining-upward sandstones, which are blocky at the base and can be stacked or singular. These sandstones are overlain by thick marine shales. Represents channel-levee complexes and fan lobes deposited basinward of the shelf edge.

Deterministic: A process in which future states can be forecast exactly from knowledge of the present state and rules governing the process. It contains no random or uncertain components.

Development: Activities following exploration, including the installation of production facilities and the drilling and completion of wells for production.

Development systems: Basic options used in constructing OCS permanent production facilities.

> **Compliant tower (CT)**: An offshore facility consisting of a narrow, flexible tower and a piled foundation that can support a conventional deck for drilling and production operations. Unlike the fixed platform, the compliant tower withstands large lateral forces by sustaining significant lateral deflections and is usually used in water depths between 1,500 and 3,000 ft.
>
> **Fixed platform (FP)**: An offshore facility consisting of a jacket (a tall vertical section made of tubular steel members supported by piles driven into the seabed) with a deck placed on top, providing space for crew quarters, drilling rigs, and production facilities. The fixed platform is economically feasible for installation in water depths up to about 1,650 ft.
>
> **Floating production system (FPS)**: An offshore facility consisting of a semi-submersible that is equipped with drilling and production equipment. It is anchored in place with wire rope and chain or can be dynamically positioned using rotating thrusters. Wellheads are located on the ocean floor and are connected to the surface deck with production risers designed to accommodate platform motion. Floating produc-

tion systems can be used in water depths ranging from 600 to 6,000 ft.

Floating Production, Storage & Offloading System (FPSO): An offshore facility consisting of a large tanker type vessel moored to the seafloor. An FPSO is designed to process and stow production from nearby subsea wells and to periodically offload the stored oil to a smaller shuttle tanker. The shuttle tanker then transports the oil to an onshore facility for further processing. An FPSO may be suited for marginally economic fields located in remote deepwater areas where a pipeline infrastructure does not exist. Floating production, storage & offloading systems are projected to be economically feasible for installation in water depths up to 10,000 ft. Currently, there are no FPSO's approved for use in the Gulf of Mexico.

Mini-tension leg platform (Mini-TLP): An offshore facility consisting of a floating mini-tension leg platform of relatively low cost developed for production of smaller deepwater reserves that would be uneconomic to produce using more conventional deepwater production systems. It can also be used as a utility, satellite, or early production platform for larger deepwater discoveries. Mini-tension leg platforms can be used in water depths ranging from 600 to 3,500 ft.

SPAR platform (SP): An offshore facility consisting of a large diameter vertical cylinder supporting a deck. It has a typical fixed platform topside (surface deck with drilling and production equipment), three types of risers (drilling, production, and export), and a hull which is moored using a taut catenary system of 6 to 20 lines anchored into the seafloor. SPAR's are used at present in water depths up to 3,000 ft, although existing technology can extend this to about 10,000 ft.

Subsea system (SS): An offshore facility ranging from single subsea wells producing to a nearby platform, floating production system, or tension leg platform, to multiple wells producing through a manifold and pipeline system to a distant production facility. These systems are now used in water depths up to 7,000 ft, although existing technology can extend this to about 10,000 ft.

Tension leg platform (TLP): An offshore facility consisting of a floating structure held in place by vertical, tensioned tendons connected to the sea floor by pile-secured templates. Tensioned tendons provide for use of the tension leg platform in a broad water depth range and for limited vertical motion. Tension leg platforms can be used in water depths up to about 7,000 ft.

Diagenesis: All the chemical, physical, and biologic changes, modifications, or transformations undergone by a sediment after its initial deposition (i.e., after it has reached its final resting place in the current cycle of erosion, transportation, and deposition), and during and after its lithification, exclusive of surficial alteration (weathering) and metamorphism.

Discounted cash flow analysis: An analysis of future anticipated expenditures and revenues associated with a project discounted back to time zero (usually the present) at a rate typically representing the average opportunity cost or cost of capital of the investor or a desired rate of return.

Dissolved gas: See "gas, natural."

Dolomitization: The conversion of limestone into dolomite.

Echinoid: Any echinozoan belonging to the class Echinoidea, characterized by a subspherical to modified spherical shape, interlocking calcareous plates, and by movable appendages (e.g., a sea urchin).

Economic analysis: An assessment performed in order to estimate the portion of the undiscovered conventionally recoverable resources in an area that is expected to be commercially viable in the long term under a specific set of economic conditions.

Economically recoverable resources: See "resources."

Eolian: Pertaining to the wind. Said of rocks, soils, and deposits (such as loess, dune sand, and some volcanic tuffs) whose constituents were transported (blown) and laid down by atmospheric currents, or of landforms produced or eroded by the wind, or of sedimentary structures (such as ripple marks) made by the wind, or of geologic processes (such as erosion and deposition) accomplished by the wind.

Established play: See “play.”

Evaporite: See “sediment.”

Exploration: The process of searching for minerals prior to development. Exploration activities include geophysical surveys, drilling to locate hydrocarbon reservoirs, and the drilling of delineation wells to determine the extent and quality of an existing discovery prior to a development decision.

Facies: The aspects, appearance, and characteristics of a rock unit, usually reflecting the conditions of origin.

Fan: See “depositional style/facies.”

Field: A producible accumulation of hydrocarbons consisting of a single pool or multiple pools related to the same geologic structure and/or stratigraphic condition. In general usage this term refers to a commercial accumulation.

Fixed platform: See “development systems.”

Floating production system: See “development systems.”

Fluvial deposits: A general description of all sediments deposited in water by streams.

Formation: A mappable sedimentary rock unit of distinctive lithology.

Frontier play: See “play.”

Gas, natural: A mixture of gaseous hydrocarbons (typically methane with lesser amounts of ethane, propane, butane, pentane, and possibly some non-hydrocarbon gases).

- **Associated gas**: The volume of natural gas that occurs in crude oil reservoirs as free gas (gas cap).
- **Dissolved gas**: The volume of natural gas that occurs as gas in solution with crude oil reservoirs.
- **Nonassociated gas**: The volume of natural gas that occurs in reservoirs and is not in contact with significant quantities of crude oil.

Gas hydrate: Naturally occurring solids of water molecules forming a rigid lattice of cages, most of which contain a molecule of natural gas, mainly methane. Hydrates occur worldwide under conditions of low temperature and high pressure, usually in water depths of 300-500 m (984-1,641 ft) or deeper. They also occur in the polar regions, both onshore and offshore, where temperatures are cold enough for permafrost to be present. Also known as gas clathrates.

Gastropod: Any mollusk belonging to the class Gastropoda, characterized by a distinct head with eyes and tentacles and in most, by a single calcareous shell that is closed at the apex, sometimes spiralled, not chambered, and generally asymmetrical (e.g., a snail). Stratigraphic range is upper Cambrian to present.

Grainstone: A carbonate rock that is grain-supported and contains no mud. Often the interstices are filled with a sparry cement.

Growth factor: A function used to calculate an estimate of a field’s size at a future date. Growth factors reflect technology, market, and economic conditions existing over the period spanned by the estimates.

Hydrocarbon limit: See “play limit.”

Hydrocarbon: Any of a large class of organic compounds containing primarily carbon and hydrogen. Hydrocarbons include crude oil and natural gas. As used in this report the term is synonymous with petroleum.

Lacustrine deposits: A general description for all sediments deposited in lakes.

Limestone: A sedimentary rock consisting predominantly of calcium carbonate, primarily in the form of the mineral calcite. Limestones are formed by either organic or inorganic processes, and may be detrital, chemical, oolitic, earthy, crystalline, or recrystallized; many are highly fossiliferous and clearly represent ancient shell banks or coral reefs.

Lithology: The description of rocks, especially sedimentary clastics, on the basis of such characteristics as color, structures, mineralogic composition, and grain size.

Margin: See “continental margin.”

Mean: A statistical measure of central tendency; the average or expected value, calculated by summing all values and dividing by the number of values.

Micrite: A descriptive term used by Folk (1959) for the semiopaque, crystalline, interstitial component (matrix) of limestones, consisting of chemically precipitated carbonate (calcite) mud whose crystals have diameters of less than 4 microns (generally 1-3 microns), and interpreted as a lithified ooze.

Miliolid: A faraminifer belonging to the family Miliolidae, characterized by a test that usually has a porcelaneous and imperforate wall and has two chambers to a whorl variably arranged about a longitudinal axis.

Mini-tension leg platform: See "development systems."

Model: A geologic hypothesis expressed in mathematical form.

Mudstone: A detrital sedimentary rock composed of clay-sized particles.

Nonassessed sand: See "sand."

Nonassociated gas: See "gas, natural."

Oil, crude: A mixture of hydrocarbons that exists naturally in the liquid phase in subsurface reservoirs.

Oolitic: A descriptive term for one of the small, round, accretionary bodies in a sedimentary rock. Resembles the roe of fish with diameters of 0.25-2 mm (commonly 0.5-1 mm). Ooliths are usually formed of calcium carbonate in successive concentric layers commonly around a nucleus in shallow, wave-agitated water.

Original proved reserves: Analogous to proved reserves. See "reserves."

Outer Continental Shelf (OCS): The continental margin, including the shelf, slope, and rise, beyond the line that marks the boundary of state ownership; that part of the seabed under Federal jurisdiction.

Packstone: A carbonate rocks that contains some mud but is still grain-supported (i.e., there is less clay size matrix than grains).

Patch reef: An isolated coral growth forming a small platform in a lagoon, barrier reef, or atoll and surrounded by rocks of unlike facies.

Petroleum: A collective term for oil, gas, and condensate.

Planning area: A subdivision of an offshore area used as the initial basis for considering blocks to be offered for lease in the Department of the Interior's areawide offshore oil and gas leasing program.

Play: A group of known and/or postulated pools that share common geologic, geographic, and temporal properties, such as history of hydrocarbon generation, migration, reservoir development, and entrapment.

> **Conceptual play**: A play hypothesized on the basis of subsurface geophysical data and regional geologic knowledge of the area. It is still a hypothesis, and the play concept has not been verified.
>
> **Established play**: A play in which hydrocarbons have been discovered in one or more pools for which reserves have been estimated.
>
> **Frontier play**: A play in which exploration activities are at an early stage. Some wells have already been drilled to verify the play concept.

Play limit: The geographic boundary of a play encompassing areas where hydrocarbon accumulations are known to exist, or where limited data indicate they may exist. Play components critical to the existence of these accumulations include hydrocarbon fill, reservoir, and trap.

> **Hydrocarbon limit**: A subset of the play limit where hydrocarbon accumulations have been encountered, including field reserves.

Pool: A discovered or undiscovered hydrocarbon accumulation, typically within a single stratigraphic interval. As utilized in this report, it is the aggregation of all sands within a field that occur in the same play.

Progradational: See "depositional style/facies."

Prospect: A geologic feature having the potential for trapping and accumulating hydrocarbons; a pool(s) or potential field.

Proved reserves: See “reserves.”

Province: A large area unified geologically by means of a single dominant structural element or a number of contiguous elements.

Recoverable resources: See “resources.”

Reef: A ridge- or mound-like, layered, sedimentary rock structure, or part thereof, built by and composed almost exclusively of the remains of sedentary organisms (especially corals), and usually enclosed in rock of differing lithology.

Backreef: The landward side of a reef bordered by tidal flat on landward side. Includes the area and the contained deposits between the reef and the mainland. The term is often used adjectivally to refer to the restricted lagoon behind a barrier reef.

Forereef: The seaward side of a reef, commonly represented by a steeply dipping slope with deposits of reef talus and turbidites grading seaward into organic-rich lime mud.

Reef talus: Massive inclined strata consisting of reef detritus deposited along the seaward margin of an organic reef.

Region: A very large expanse of acreage usually characterized or set apart by some aspect such as a political division or area of similar geography. In this report, the regions are groupings of planning areas.

Remaining proved reserves: See “reserves.”

Reserves: The quantities of hydrocarbon resources anticipated to be recovered from known accumulations from a given date forward. All reserve estimates involve some degree of uncertainty.

Proved reserves: The quantities of hydrocarbons estimated with reasonable certainty to be commercially recoverable from known accumulations and under current economic conditions, operating methods, and government regulations. Current economic conditions include prices and costs prevailing at the time of the estimate. Estimates of proved reserves equal cumulative production plus remaining proved reserves and do not include reserves appreciation.

Remaining proved reserves: The quantities of proved reserves currently estimated to be recoverable. Estimates of remaining proved reserves equal proved reserves minus cumulative production.

Reserves appreciation: The observed incremental increase through time in the estimates of reserves (proved and unproved [P & U]) of an oil and/or gas field. It is that part of the known resources over and above proved and unproved reserves that will be added to existing fields through extension, revision, improved recovery, and the addition of new reservoirs. Also referred to as reserves growth or field growth.

Total reserves: All hydrocarbon resources within known fields that can be profitably produced using current technology under existing economic conditions. Estimates of total reserves equal cumulative production plus remaining proved reserves plus unproved reserves plus reserves appreciation.

Unproved reserves: Quantities of hydrocarbon reserves that are assessed on the basis of geologic and engineering information similar to that used in developing estimates of proved reserves, but technical, contractual, economic, or regulatory uncertainty precludes such reserves being classified as proved.

Reservoir: A subsurface, porous, permeable rock body in which an isolated accumulation of oil and/or gas is stored.

Resource assessment: The estimation of potential amounts of recoverable resources. The focus is normally on conventionally recoverable hydrocarbons.

Resources: Concentrations in the earth’s crust of naturally occurring liquid or gaseous hydrocarbons that can conceivably be discovered and recovered. Normal use encompasses both discovered and undiscovered resources.

Recoverable resources: The volume of hydrocarbons that is potentially recoverable, regardless of the size, accessibility, recovery technique, or economics of the postulated accumulations.

Conventionally recoverable resources: The volume of hydrocarbons that may be produced from a wellbore as a consequence of natural pressure, artificial lift, pressure maintenance (gas or water injection), or other secondary recovery methods. They do not include quantities of hydrocarbon resources that could be recovered by enhanced recovery techniques, gas in geopressured brines, natural gas hydrates (clathrates), or oil and gas that may be present in insufficient quantities or quality (low permeability "tight" reservoirs) to be produced via conventional recovery techniques.

Remaining conventionally recoverable resources: The volume of conventionally recoverable resources that has not yet been produced and includes remaining proved reserves, unproved reserves, reserves appreciation, and undiscovered conventionally recoverable resources.

Economically recoverable resources: The volume of conventionally recoverable resources that is potentially recoverable at a profit after considering the costs of production and the product prices.

Undiscovered resources: Resources postulated, on the basis of geologic knowledge and theory, to exist outside of known fields or accumulations. Included also are resources from undiscovered pools within known fields to the extent that they occur within separate plays.

Undiscovered conventionally recoverable resources (UCRR): Resources in undiscovered accumulations analogous to those in existing fields producible with current recovery technology and efficiency, but without any consideration of economic viability. These accumulations are of sufficient size and quality to be amenable to conventional primary and secondary recovery techniques. Undiscovered conventionally recoverable resources are primarily located outside of known fields.

Undiscovered economically recoverable resources (UERR): The portion of undiscovered conventionally recoverable resources that is economically recoverable under imposed economic and technologic conditions.

Retrogradational: See "depositional style/facies."

Risk: The chance or probability that a particular event will not occur; the complement of marginal probability or success.

Rudist: Any bivalve mollusk belonging to the superfamily Hippuritacea, characterized by an inequivalve shell, usually attached to a substrate, rarely free, and either solitary or gregarious, in reef-like masses. They are frequently found in association with corals, and their stratigraphic range is upper Jurassic to upper Cretaceous, and possibly into the Paleocene.

Sand: The aggregation of all fault-block portions of an originally continuous sandstone body.

Assessed sand: A sand discovered before January 1, 1999, with reserve estimates in the databases herein.

Nonassessed sand: A sand discovered before January 1, 1999, with no reserve estimates in the databases herein.

Sandstone: A clastic rock composed of particles that range in diameter from 1/16-2 mm in diameter. Sandstones make up about 25% of all sedimentary rocks.

Seal: Impervious rocks that form a barrier to migrating hydrocarbons above, below, and/or lateral to the reservoir rock.

Sediment: Solid material, both mineral and organic, that is in suspension, is being transported, or has been moved from its site of origin by air, water, or ice and has come to rest on the earth's surface, either above or below sea level.

Carbonate: A sediment consisting chiefly of carbonate, commonly calcium carbonate, that precipitates from an aqueous solution originating as a chemical process, or more commonly, as a biological process (e.g., reef building).

Clastic: A sediment that originates in another form, but the effects of erosion and transportation have redeposited the sediment away from its site of origin.

Evaporite: A nonclastic sediment that results from the complete evaporation of seawater or brines (e.g., halite, aragonite, and anhydrite).

Series: A time-stratigraphic unit of rock classed next in rank below system, and above chronozone, on the basis of a clearly designated stratigraphic interval.

Shale: A sedimentary rock composed of detrital sediment particles less than 0.004 mm in diameter. Shales tend to be red, brown, black, or gray, and usually originate in relatively still waters.

Shelf: See “continental shelf.”

Shelf edge: The demarcation between the continental shelf and the continental slope.

Slope: See “continental slope.”

Source rock: A sedimentary rock, commonly a shale or limestone, whose organic matter has been transformed naturally by heat and pressure through time and depth of burial into oil and/or gas. This transformation is referred to as generation or maturation.

Spar: A descriptive term for the crystalline and clear, transparent, or translucent interstitial component of limestone, consisting of clean, relatively coarse-grained calcite (or aragonite) that either accumulated during deposition or was introduced later as a cement. It is more coarsely crystalline than micrite, the grains having diameters that exceed 10 microns (Folk, 1959).

SPAR platform: See “development systems.”

Stratigraphic trap: See “trap.”

Stromatoporoid: Any one of a group of invertebrates characterized by a calcareous skeleton and colonial, massive, sheet-like, or dendroid growth. Stratigraphic range is Cambrian to Cretaceous.

Structural trap: See “trap.”

Subsea system: See “development systems.”

System: A major time-stratigraphic rock unit of worldwide significance, representing the fundamental unit of time-stratigraphic classification. In this assessment it is classed next in rank below province, and above series.

Tension leg platform: See “development systems.”

Total endowment: All conventionally recoverable hydrocarbon resources of an area. Estimates of total endowment equal undiscovered conventionally recoverable resources plus cumulative production plus remaining proved reserves plus unproved reserves plus reserves appreciation.

Total reserves: See “reserves.”

Trap: A barrier to hydrocarbon migration that allows oil and gas to accumulate in a reservoir.

Stratigraphic trap: A trap that results from changes in the lithologic character of a rock.

Structural trap: A trap that results from folding, faulting, or other deformation of a rock.

Uncertainty: Imprecision in estimating the value (or range of values) for a variable.

Unconformity: A surface of erosion or nondeposition, usually the former, that separates younger strata from older rocks.

Undiscovered conventionally recoverable resources (UCRR): See “resources.”

Undiscovered economically recoverable resources (UERR): See “resources.”

Undiscovered resources: See “resources.”

Unproved reserves: See “reserves.”

Wackestone: A carbonate rock that is matrix-supported (i.e., there are more than 10% grains, but the fine-grained, clay-size matrix essentially surrounds the grains).

Wadi: A term used in desert regions for a stream bed or channel, or a steep-sided and bouldery ravine, gully, or valley, or a dry wash, that is usually dry except during the rainy season, and that often forms an oasis.

Attribute Definitions

Hyperlinked attributes refer to a list of possible values.

AC_LAB: Abbreviation of protraction name and block number combination
API: Oil API gravity (API units)
AREA_CODE: Abbreviation of protraction area name
ASSESSED: Assessed – Yes (Y), No (N)
BGI: Initial gas formation volume factor (scf/cf)
BLK_FED_AP: Block federal approval date
BLOCK_LAB: Block number in label format
BLOCK_NUM: Block number
BOI: Initial oil formation volume factor (bbl/stb)
CHRONOZONE: Chronozone name
COMPLEX_ID: Complex identification number
CUMBOE: Cumulative BOE produced (bbl)
CUMGAS: Cumulative gas produced (Mcf)
CUMOIL: Cumulative oil produced (bbl)
DESCRIPT: Name of state
DISCBOE: Discovered BOE (bbl) [P_RECBOE + U_RECBOE]
DISCGAS: Discovered gas (Mcf) [P_RECGAS + U_RECGAS]
DISCOIL: Discovered oil (bbl) [P_RECOIL + U_RECOIL]
DRIVE: Dominant reservoir drive type
EIAID: Energy Information Administration identification number
FAIRWAY_ID: Fairway identification number
FAIRWAY_TY: Fairway type
FCLASS: MMS field classification
FDDATE: Field discovery date (YYMM)
FDDATEH: Discovery date of last reservoir discovered in field (YYMM)
FD_TYPE: Field type Oil (O), Gas (G), Both (B), Nonassessed (N)
FDYEAR: Field discovery year (YY)
FDYEARH: Discovery year of last reservoir discovered in field (YY)
FLD97: MMS_FIELD in 9701 data set
FLD99: MMS_FIELD in 9901 data set
FSTAT: Field status – Active (A), Expired (E), Nonassessed (N)
FSTRU: Field structure code
FTRAP1: Field primary trap code
FTRAP2: Field secondary trap code
GAREA: Gas total area (acres)
GIP: Technically recoverable gas in place (Mcf)
GOR: Gas-oil ratio (Mcf/bbl)
GRECG: Gas reservoirs' recoverable gas (Mcf)
GRECO: Gas reservoirs' recoverable oil (bbl)
GRF: Gas recovery factor (decimal)
GRP: Produced GOR for gas reservoirs (Mcf/stb)
GTHK: Gas average net thickness (ft)
GVOL: Gas total volume (acre-ft)
ID: Name of theme
INSTALL_DA: Platform installation date
LEASE: Lease number
LINE_ID: Fan line identification – F1-F2, F2-F3
MAJ_STRUC: Major platform structure – Yes (Y), No (N)
MMS_FIELD: MMS field name
NCNT: Count of nonassociated gas reservoirs
OAREA: Oil total area (acres)
OIP: Technically recoverable oil in place (bbl)
OPER_NAME: Operator name
OPER_RES: Operator reservoir name
ORECG: Oil reservoirs' recoverable gas (Mcf)
ORECO: Oil reservoirs' recoverable oil (bbl)
ORF: Oil recovery factor (decimal)
ORP: Produced GOR for oil reservoirs (Mcf/stb)
OTHK: Oil average net thickness (ft)
OVOL: Oil total volume (acre-ft)
P_RECBOE: Proved recoverable BOE (bbl)
P_RECGAS: Proved recoverable gas (Mcf)
P_RECOIL: Proved recoverable oil (bbl)
P_REMBOE: Proved remaining recoverable BOE (bbl)
P_REMGAS: Proved remaining recoverable gas (Mcf)
P_REMOIL: Proved remaining recoverable oil (bbl)
P_U: Reserves category – Proved (P), Unproved (U), Nonassessed (N)
PDDATE: Pool discovery date (YYMM)
PDDATEH: Discovery date of last reservoir discovered in pool (YYMM)
PDYEAR: Pool discovery year (YY)
PDYEARH: Discovery year of last reservoir discovered in pool (YY)
PERMEABILI: Average permeability (millidarcy)
PI: Initial pressure (psi)
PIC: Producing interval code
PLAREA: Planning area – Central (C), Eastern (E), Western (W)
PLAREA_ID: Planning area ID number
PLAY: Noncompressed play name (includes spaces and periods)
PLAY97: PLAY in 9701 data set
PLAY97O: PLAY with sub-play indicator in 9701 data set
PLAY99: PLAY in 9901 data set

PLAY_NAME: Play name (periods and extra spaces have been removed)
PLAY_NUM: Play number
PLAY_TYPE: Type of play
PLN97: PLAY_NUM in 9701 data set
PLN99: PLAY_NUM in 9901 data set
POOL_NAME: Pool name – combined PLAY_NUM and MMS_FIELD
POROSITY: Average porosity (decimal)
PPL_CODE: Pipeline code keyed to PPL_TYPE to facilitate mapping
PPL_TYPE: Pipeline type
PPL_SIZE: Pipeline size (diameter) in inches
PROP: Proportion oil (decimal)
PROT_APRV: Protraction approval date
PROT_NAME: Protraction name
PROT_NUM: Protraction number
PROVINCE: Province name
RECG_AF: Recoverable gas per acre-foot (Mcf/acre-foot)
RECO_AF: Recoverable oil per acre-foot (bbl/acre-foot)
REGION: Region name
REMARK: Remark field
RES_TYPE: Dominant reservoir type
RSI: Initial solution gas-oil ratio (scf/stb)
SAND: MMS sand name (not unique)
SAND_NAME: MMS sand name (unique) – combined PLAY_NUM, MMS_FIELD, and SAND
SAND97: SAND in 9701 data set
SAND99: SAND in 9901 data set
SCNT: Count of saturated oil reservoirs
SDCOUNT: Count of sands
SDDATE: Sand discovery date (YYMM)
SDDATEH: Discovery date of last reservoir discovered in sand (YYMM)
SDPG: Sand pressure gradient (psi per foot)
SDTG: Sand temperature gradient (degrees F per 100 ft)
SD_TYPE: Sand type – Gas (G), Oil (O), Combination (B), Nonassessed (N)
SDYEAR: Sand discovery year (YY)
SDYEARH: Discovery year of last reservoir discovered in sand (YY)
SERIES: Series name
SLOT_COUNT: Number of platform slots
SPGR: Gas specific gravity (decimal at 60 degrees F and 15.025 psia)
SS: Subsea depth (ft)
STRUC_NAME: Platform structure name
STRUC_NUM: Platform structure number
STRUC_TYPE: Platform structure type
SW: Water saturation (decimal)
SYSTEM: System name
TAREA: Total area (acres)
TEXT_LABEL: Expanded text label of planning area name
THK: Total average net thickness (ft)
TI: Initial temperature (degrees F)
TRCNT: Count of total reservoirs
TVOL: Total volume (acre-ft)
U_RECBOE: Unproved recoverable BOE (bbl)
U_RECGAS: Unproved recoverable gas (Mcf)
U_RECOIL: Unproved recoverable oil (bbl)
UCNT: Count of undersaturated oil reservoirs
UNDWTR_COM: Number of underwater completions
WDEP: Water depth (ft)
WELL: Well name/number
WELLAPI: Discovery well API number
WELL_API: API number of non-discovery well
YIELD: Yield (stb/MMcf) – gas reservoirs' recoverable condensate divided by recoverable gas

Definitions and Data Codes

The text after the dash indicates the attribute name in the data files.

Chronozones - CHRONOZONE

LE	Lower Eocene
LJ	Lower Jurassic
LK3	Lower Lower Cretaceous
LK6	Middle Lower Cretaceous
LK8	Upper Lower Cretaceous
LL	Lower Paleocene
LM1	Lower Lower Miocene
LM2	Middle Lower Miocene
LM4	Upper Lower Miocene
LO	Lower Oligocene
LP	Lower Pliocene
LPL	Lower Pleistocene
LTR	Lower Triassic
ME	Middle Eocene
MM4	Lower Middle Miocene
MM7	Middle Middle Miocene
MM9	Upper Middle Miocene
MPL	Middle Pleistocene
MJ	Middle Jurassic
MO	Middle Oligocene
MTR	Middle Triassic
UK2	Lower Upper Cretaceous
UK5	Upper Upper Cretaceous
UL	Upper Paleocene
UM1	Lower Upper Miocene
UM3	Upper Upper Miocene
UE	Upper Eocene
UO	Upper Oligocene
UP	Upper Pliocene
UPL	Upper Pleistocene
UTR	Upper Triassic
UJ4	Upper Jurassic

Depositional Style/Facies

A	Aggradational
F	Fan
P	Progradational
R	Retrogradational

Drive Mechanisms - DRIVE

COM	Combination
DEP	Depletion
GCP	Gas Cap
PAR	Partial Water
SLG	Solution Gas
UNK	Unknown
WTR	Water

Field Classes - FCLASS

NA	Nonassessed
OTH	Other: Salt, Sulfur
PDN	Proved Developed Nonproducing
PDP	Proved Developed Producing
PU	Proved Undeveloped
RK	Resources, Known
UPO	Unproved Possible
UPR	Unproved Probable

Field Primary and Secondary Trap Codes - FTRAP1 and FTRAP2

A	Anticline
B	Faulted Anticline
C	Rollover Anticline into Growth Fault
D	Normal Fault
E	Reverse Fault
F	Turtle Structure
G	Flank Traps Associated with Salt or Shale Diapirs
H	Sediments Overlying Domes
I	Caprock
J	Updip Facies Change
K	Updip Pinch Out
L	Permeability Change
M	Onlap Sands
N	Angular Unconformity
O	Barrier Reef
P	Patch Reef
Q	Subsalt Trap
U	Unknown

Field Structure Codes - FSTRU

A	Anticline
B	Fault
C	Shallow Salt Diapir (0-4,000 ft subsea)
D	Intermediate Salt Diapir (4,000-10,000 ft subsea)
E	Deep Salt Dome (greater than 10,000 ft subsea)
F	Salt Ridge
G	Shale Diapir
H	Unconformity
I	Stratigraphic
J	Reef
K	Rollover into Growth Fault
L	Rotational Slump Block

M	Louann Salt
N	Reverse Fault
U	Unknown

Platform Structure Types - STRUC_TYPE

CAIS	Caisson
CT	Compliant Tower
FIXED	Fixed Leg Platform
FPSO	Floating Production, Storage, and Off-loading
MOPU	Mobile Production Unit
MTLP	Mini Tension Leg Platform
SPAR	SPAR Platform
SSMNF	Subsea Manifold
SSTMP	Subsea Templates
TLP	Tension Leg Platform
WP	Well Protector

Play Types - PLAY_TYPE

A1	Aggradational
AP1	Aggradational/Progradational
B1	Carbonate
F1	Fan 1
F2	Fan 2
P1	Progradational
R1	Retrogradational
S1	Structural 1
S2	Structural 2
X1	Fold Belt 1
X2	Fold Belt 2

Protraction Areas - AREA_CODE and PROT_NAME

AC	Alaminos Canyon
AP	Apalachicola
AT	Atwater Valley
BA	Brazos
BM	Bay Marchand
BS	Breton Sound
CA	Chandeleur
CC	Corpus Christi
CH	Charlotte Harbor
CP	Coon Point
DC	Desoto Canyon
DD	Destin Dome
DT	Dry Tortugas
EB	East Breaks
EC	East Cameron
EI	Eugene Island
EL	The Elbow
EW	Ewing Bank
FM	Florida Middle Ground
GA	Galveston
GB	Garden Banks
GC	Green Canyon
GI	Grand Isle
GV	Gainesville
HE	Henderson
HH	Howell Hook
HI	High Island
KC	Keathley Canyon
KW	Key West
LL	Lloyd
LP	Lighthouse Point
LU	Lund
MA	Miami
MC	Mississippi Canyon
MI	Matagorda Island
MO	Mobile
MP	Main Pass
MU	Mustang Island
PB	St. Petersburg
PE	Pensacola
PI	Port Isabel
PL	South Pelto
PN	North Padre Island
PR	Pulley Ridge
PS	South Padre Island
RK	Rankin
SA	Sabine Pass, Louisiana
SM	South Marsh Island
SP	South Pass
SS	Ship Shoal
ST	South Timbalier
SX	Sabine Pass, Texas
TP	Tarpon Springs
TS	Tiger Shoal
VK	Viosca Knoll
VN	Vernon Basin
VR	Vermilion
WC	West Cameron
WD	West Delta
WR	Walker Ridge

Reservoir Types - RES_TYPE

N	Nonassociated Gas
S	Saturated Oil
U	Undersaturated Oil

Units

B	billion
bbl	barrel(s)
Bbbl	billion barrels
Bbo	billion barrels of oil

BBOE	billion barrels of oil equivalent
Bcfg	billion cubic feet of gas
BOE	barrels of oil equivalent
bopd	barrels of oil per day
cf	cubic feet
ft	feet
km	kilometer
m	meter(s)
M	thousand
Mbo	thousand barrels of oil
MBOE	thousand barrels of oil equivalent
Mcf	thousand cubic feet
mi	mile(s)
mm	millimeter(s)
MM	million
MMbbl	million barrels
MMbo	million barrels of oil
MMBOE	million barrels of oil equivalent
MMcf	million cubic feet
MMcfd	million cubic feet per day
MMcfg	million cubic feet of gas
scf	standard cubic feet
stb	stock tank barrels
T	trillion
Tcf	trillion cubic feet
Tcfg	trillion cubic feet of gas